

Translation of letter dated 10.22.2001



Response to the Office Action dated 06.27.2001:

- I. Enclosed is a new patent claim 1, along with specification pages 4, 5 and 8 which are adapted to it.
- II. Based on the unchanged preamble to the characterizing section, the new patent claim consists of parts of the characterizing section of present claim 1 as well as parts of the present dependent claims 2, 3 and 4.

The present dependent claims 5 and 6 are deleted.

- III. The invention continues to be based on providing a method for producing propellant powder, which method makes it easy to achieve a flattening of the maximum pressure curve in the temperature region for which the weapon is intended.

Starting with the generic section of the preamble to patent claim 1, the object is solved in that the surface treatment of the respective propellant powder involves a surface treatment with a solution containing one or several of the following substances: polyether, polyurea, polybutadiene, polyamide, poly-3-nitratomethyl-3-methyloxetane (polyNIMMO) or polyglycidylazide (GAP), alkylnitrateethylnitramine (methyl-NENA, ethyl-NENA, butyl-NENA), bis (2,2-dinitropopylene), acetal-formal (BDNPA-F), dinitrodiazaalkanes.

Treating the surface of the respective propellant powder with the aid of a solution of one or several of the substances mentioned in the characterizing section of claim 1 is new as compared to the references cited in opposition by the Examiner because none of the aforementioned references contains a hint as to the substances used for our invention.

The claim 1 used so far generally claims that the surface treatment of the respective propellant powder is realized with "inert or energetic polymers" and/or with the aid of energetic monomer plasticizing agents." This claim is no longer maintained because these generic terms are too general and are already known from prior art, e.g. the references D1 and D2.

The cited prior art, however, does not disclose the special substances according to the invention as listed in the new claim 1, which in particular advantageously do not have a tendency to migrate during the surface treatment of the respective propellant powder. As a result, the desired effects for solving the object can be realized with small "amounts" and the ignition willingness is reduced only slightly. An additional advantage of the method according to the invention is that the claimed surface treatment can be realized easily with the substances listed in claim 1.

The references cited in opposition by the Examiner do not contain any references to the use of said substances for a surface treatment.

The references D1 and D2 in particular do not disclose special materials for the surface treatment, but only mention in general terms that a polymer is used. It will be clear from the following text that this general designation of the substance is not sufficient for arriving at the selected grouping according to the invention when selecting from a plurality of possible polymers.

The reference D3 discloses applying a coating in several stages by means of a solution of, for example, nitroglycerine. The substance nitroglycerine is an energetic monomer substance with the disadvantage of a high sensitivity, in particular sensitivity to impact, and is not used for the deployment range according to the invention. Centralit is also listed as example herein, which has the disadvantage of binding well with the powder matrix and is not suitable for use with the invention because of its high migration.

The examples in reference D3 already show that the problem cannot be solved, for example, through a general listing of the energetic monomers nitroglycerine and centralit.

The energetic polymer of the type polyvinylnitrate, disclosed in reference D5 (D5, example 1 on page 5), cannot lead to the substances according to our invention because polyvinylnitrate - besides being hard to obtain - as powdery thermoplastic substance is not very suitable for use as a surface treatment.

The aforementioned arguments already show that the above-mentioned energetic monomers and energetic polymers in no way can be used to replace the substances according to our invention because of the different properties. The substances according

to the invention are not comparable to the monomers and polymers disclosed in prior art. It is therefore not possible to use any optional monomer or polymer substance to solve the object. Rather, the person skilled in the art must use inventive activity to arrive at the solution features as disclosed in claim 1.

The cellulose derivatives disclosed in reference D4 and mentioned in Point 2.2 of the Office Action belong to the group of polyesters and cannot be considered polyether substances because the molecules have a different composition. The polyether substances disclosed for our invention are **not** cellulose derivatives belonging to the group of polyesters (ethers), but are cyclical aliphatic polyethers. The use of polyester, however, results in a not inconsiderable reduction in the specific energy. For that reason, the use of cellulose derivatives (polyester) cannot satisfactorily solve this object.

Polyurethane is disclosed in cited reference D6 as substance. We want to point out here that polyurethane is no longer claimed in our application and is used according to the prior art as dispersion and not as solution, as was the case for our invention.

Replacing alkylnitratethylnitramine with nitroglycerine, as assumed by the Examiner in Point 3.2 of the Office Action with respect to reference D7, is not possible because nitroglycerine is highly sensitive to impact as previously mentioned and the NENA substances are distinguished by high insensitivity to impact and good LOVA characteristics. Again, a replacement of the substances is not possible because these would not meet the required criteria. The polyesters and/or polyurethanes disclosed in reference D8, for example, also cannot replace the polyurea, polybutadiene, polyamide and polyether according to the invention since polyether advantageously shows only a slight and/or no migration tendency and because the inventive substances furthermore

have a stabilizing effect, for example as compared to polyurethane, and a lower concentration is needed as compared to polyester, wherein polyester has the disadvantage of migrating as previously mentioned.

The above-presented arguments easily show that a person skilled in the art could not arrive at the inventive substances disclosed in claim 1 without inventive activity when viewing the prior art either individually or in combination.

IV. Applicant therefore believes that a patent granting should be possible upon presenting of the aforementioned documents, particularly the adapted specification on pages 4, 5 and 8 in which the example 3 was deleted.

In the event that the Examination Office is not ready to grant a patent, we want to request an interview as a precautionary measure.

In the name of

Nitrochemie Aschau GmbH

/s/ Dietrich

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Enclosures:

Clean text pages for adapted specification pages 4, 5, and 8 (3 copies each)  
manual corrections of present claims and specification pages 4, 5 and 8 (one copy each)